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SCIENTIFIC CHEMICAL SESSION AT TASHKENT

A joint session of the Department of Chemical Sciences, Academy of Sciences USSR, and the Academy of Sciences Uzbek SSR was called with the view of coordinating work that is of importance for the people's economy of Uzbekistan. The meeting took place at Tashkent and continued for 5 days.

The problem of fertilizers, which is of great importance for Uzbekistan, was discussed from every aspect. The leading report on this subject was presented by S. I. Vol'fkovich, Active Member, Academy of Sciences USSR. Vol'fkovich paid particular attention to nitrogen and phosphorus fertilizers, the application of which is the best method for improving the yields of cotton and other crops planted on irrigated lands. He stated that one ton of nitrogen applied in the form of nitrogen fertilizer on a cotton field produces 12-14 tons of crude cotton, while one ton of phosphorus, when added to the nitrogen fertilizer, increases that yield by 6-7 tons of crude cotton. The nitrogen and phosphorus fertilizers must be used in combination with organic fertilizers.

According to Vol'fkovich, increases in the concentration of fertilizers and improvement of their physical properties would satisfy an urgent need of agriculture in those respects. In view of the fact that fertilizers must be transported over long distances in Central Asia, it is best to organize the production of ammonium phosphate and of double superphosphate, which furnish 3-4 times more plant nutrients than ordinary superphosphate. One may also recommend the production of a highly effective concentrated phosphorus fertilizer, i. e., precipitate, in which the relative content of the phosphoric acid component reaches 32-44%. Of great interest in that connection is the decomposition of phosphates with nitric acid, which will permit the production of a very effective phosphorus fertilizer and at the same time a nitrogen fertilizer, i. e., potassium nitrate or ammonium nitrate. Ammosphos, which contains up to 50% of phosphoric acid and up to 15% of nitrogen, is the most highly concentrated and most rapidly acting fertilizer for cotton. The best nitrogen fertilizer is ammonium nitrate, the properties of which have been considerably improved by granulation and by the use of additives. It is advisable to supply a part of the potassium requirements in the form of potassium sulfate.

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Vol'fkovich concluded his remarks by saying that the increased demand for fertilizers in Central Asia will open the question of the expansion of local production of inorganic chemicals to be used as fertilizers.

Sixty scientists and production specialists participated in the session's special conference on fertilizers. At this conference, Candidate of Technical Sciences M. N. Nabiyev, chief of the Laboratory of Inorganic Fertilizers, Academy of Sciences Uzbek SSR, and F. M. Mirzayev, Senior Instructor, Chemicotechnological Faculty, Central Asiatic Polytechnic Institute, presented a report dealing with the results of investigations on the conversion of Central Asiatic phosphorites with the aid of nitric acid. Other participants made suggestions concerning improvements in the technique of utilization of Central Asiatic potassium salts and other salts and improvement of the physical properties of local superphosphates.

The session devoted considerable attention to the chemistry and physical chemistry of cotton. At the conference devoted to work in this field, Prof V. I. Ivanov, Institute of Organic Chemistry, Academy of Sciences USSR, discussed the effect of industrial treatment of cotton on the chemical properties of this fiber. He said that present methods of scouring and bleaching cotton damage the fiber, and added that application of procedures based on recent research will reduce this damage considerably. Following Ivanov's report, Ye. D. Kaverzneva, Doctor of Chemical Sciences, discussed new and effective methods of investigating the chemical structure of cotton fibers. These methods were developed at the Institute of Organic Chemistry, Academy of Sciences USSR. Other papers on cotton were presented by Candidate of Chemical Sciences Kh. U. Usmanov, director, Institute of Chemistry, Academy of Sciences Uzbek SSR, Candidate of Technical Sciences M. K. Aleksandrov, supervisor of laboratory, Institute of Agriculture, Academy of Sciences Uzbek SSR, and Candidate of Technical Sciences V. V. Laykov, Scientific Associate, Central Scientific Research Institute of the Cotton Industry. In these papers, the connection between the chemical and technical properties of cotton and the conditions of its growth were discussed. The authors of the papers showed that the strength, fineness, and length of cotton fibers depend on conditions existing during a definite part of the growth period rather than conditions during the whole period of growth. If the plant is influenced appropriately during the critical part of the growth period, the technical properties of the fiber can be improved.

At the special conference on cotton held at the session, the lack of coordination of work in this field was emphasized. A resolution accepted by the conference recommended that work on cotton done by chemists, technologists, and selectionists be coordinated to the end that the quality of cotton fiber may be improved and the vegetative period of growth reduced. The desirability of doing the research work in question at Tashkent was pointed out in the resolution.

A report on the present status of work in the field of plant alkaloids was made by V. M. Rodionov, Active Member, Academy of Sciences USSR. S. Yu. Yunosov, Active Member, Academy of Sciences Uzbek SSR, reported on practical results of work in this field conducted by a number of Uzbek scientists. Yunosov stated that during the 9 years of its existence, the Laboratory of Alkaloid Chemistry, Institute of Chemistry, Academy of Sciences Uzbek SSR, had analyzed about 3,000 species of plants. During this time, Uzbek scientists had isolated 35 new alkaloids that proved to be of economic importance.

A report by A. S. Sadykov, Active Member, Academy of Sciences Uzbek SSR, was devoted to problems in the field of Anabasis alkaloids.

A number of papers presented during the session dealt with acetylene chemistry. In discussing the role of acetylene chemistry in the solution of problems connected with the synthesis of anesthetics acting on the central nervous system, I. N. Nazarov, Corresponding Member, Academy of Sciences USSR,

told about the synthesis of promedol, a substance which surpasses morphine several times in its action and does not produce any harmful effects. In a paper devoted to the reactions of acetylene with aromatic compounds, I. P. Tsukervanik, Corresponding Member, Academy of Sciences Uzbek SSR, described new research in the field of acetylene chemistry done by a group of scientists at the Central Asiatic State University and the Institute of Chemistry, Academy of Sciences Uzbek SSR.

Candidate of Chemical Sciences I. S. Kantsepol'skiy, supervisor of laboratory, Institute of Chemistry, Academy of Sciences Uzbek SSR, presented an interesting report on cements used in hydrotechnical construction. V. A. Kargin, Corresponding Member, Academy of Sciences USSR, talked about high-molecular compounds. During the session, special conferences on organic chemistry, the chemistry of coal, and petroleum chemistry were held. At the conclusion of the session, M. M. Dubinin, Active Member, Academy of Sciences USSR and Secretary, Department of Chemical Sciences, Academy of Sciences USSR, stated that cooperation between chemical science and chemical production had been advanced by the work of the session. He further said that the session had also contributed to cooperation between Uzbekistan scientists and scientists working at the central scientific institutions of the Academy of Sciences USSR, adding that the progress made as a result of the session will aid in carrying out the tasks set before the chemical profession and industry by the 19th Congress of the VKP(b).

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